

Construct dual facilities to transfer water through the Delta**Category:** (To be developed)**Resources Area:** Water Quality (WQ-O-5)

Related Options: AR-A-1, AR-A-3, AR-B-3, AR-C-1, AR-C-2, AR-C-3, AR-D-2,
 WS-FL-1, WS-FL-2, WS-FL-3, WS-FL-4, WS-FL-5, WS-FL-6,
 WS-FL-7, WS-FL-8, WS-FL-9, WS-FL-10, WQ-S-8, WQ-S-9,
 WQ-S-10, WQ-S-11, WQ-O-3, WQ-O-4

Resources Issue: Operation of the export facilities could, at times, exacerbate the reverse flow conditions in the lower part of the San Joaquin River around Sherman Island by contributing to the creation of a net flow in the upstream direction. Reverse flow conditions are most likely to occur when the total Delta outflow, particularly the San Joaquin River component of the outflow, is insufficient to create the necessary hydraulic barrier against high tide and the intruding brackish water from the Bay. When reverse flow conditions exist, brackish Bay water is mixed with the fresh water and degrades the quality of the water in the interior Delta channels and the water that would eventually end up as export water at the project pumps. This condition can be exacerbated by export pumping in the south Delta. Salt content of the exported water contributes to the creation of unwanted byproducts during the treatment process for industrial and municipal uses for Delta source waters. Of particular importance is the bromide content of this brackish water that contributes to the formation of suspected carcinogens (trihalomethanes) upon disinfection of the municipal water by chlorination. The expected implementation of more stringent regulations on these byproducts requires advanced treatment processes at significant costs to local agencies. Also changes in the Delta hydrodynamics, caused by the reverse flow in the lower San Joaquin River, have caused alterations in migration, spawning, and distribution of fish species within the system. In addition, the take limits of the listed species at the projects pumping facilities imposed by the provisions of the Endangered Species Act cause pumping restrictions and unreliable operation schedule.

Discussion: This action option would consist of constructing a dual water transfer system to serve municipal and industrial uses from an isolated conveyance facility and serve agricultural users from the existing Delta pumping plants. The smaller of the two (maximum capacity of 10,000 cfs) would have a screened diversion structure on the upstream reaches of the Sacramento River system, where good quality water can be diverted directly to the M&I users who, at the present, rely on the waters exported from the Delta. Operational flexibility to minimize diversions from the Sacramento River at critical times of eggs and larvae concentrations would be a prime strategy for minimizing entrainment of striped bass eggs and larvae. Water for the agricultural sector and any other non-urban uses would make maximum use of the existing Delta conveyance and pumping facilities, and would continue to divert water from the south Delta channels. This option also involves constructing a connection between Tracy Pumping Plant and Clifton Court Forebay. Both the CVP and SWP will share the supply delivered through the canal. The advantages of this action option over the full capacity isolated facility are (1) the smaller diversions from the Sacramento River, (2) increased feasibility of screening fish at the diversion point, (3) lower cost of the diversion structure and the conveyance system around the Delta, and, (4) making use of the existing facilities for agricultural water. The disadvantages of this action option over the fully isolated facility are (1) continuation of diversion from the Delta's fresh water pool for agricultural purposes, and (2) additional costs involved in the construction of a separate system or modification of existing canals to convey the M&I water to the areas of demand.

Objectives addressed:

Biological Specific 1; Water Quality General, and Specific 1;
Water Supply General, and Specific.

The degree of seismic vulnerability of this option needs to be assessed by foundation, geotechnical, and structural engineering experts. Also, the effects of diverting water from the Sacramento River on anadromous fish migration will have to be assessed by fisheries experts.

Assumptions:

- Operation of an isolated facility in conjunction with existing facilities can be and protect fishery conditions in the estuary.

Key Feasibility Factors:

- Need to confirm that screening facilities at the diversion point on the Sacramento River will be effective in screening juvenile fish of larger than 30 mm.
- Need to confirm that construction of the canal on peat soil foundation is feasible.

Implementation Factors:

Most Likely Benefits:

- The quality of the export water for municipal use will improve.
- The reliability of the water export system will increase.
- Entrainment of anadromous fish will decrease.

Other Possible Benefits:

- Reduced interference with the resident fish life cycles.
- The flexibility to provide for water transfers will increase.

Most Likely Negative Impacts:

- Reduction of flow in the Sacramento River below the intake.
- Reduction of total Delta inflow.
- Reduced total Delta inflow would increase risks for outflow dependent species such as bay shrimp, starry flounder, longfin smelt, striped bass, and probably Delta smelt.
- Loss of agricultural land and wildlife habitat associated with construction of the facility.

- Reduced water quantities and qualities in some parts of the central Delta.

Other Possible Negative Impacts:

- Continuing partial diversions from south Delta channels would continue the existing adverse effects, but at a lower level.
- Pulse outflows may be required to repel salinity in the south Delta.
- Salt load for agriculture in the Central Valley would be the same, or higher.
- Seepage from the canal into adjacent islands.

Possible Regulatory and Institutional Constraints:

- NEPA
- CEQA
- Sec. 404 Permit
- Sec. 10 Permit
- DFG Sec. 1600 Permit
- Encroachment Permit
- FESA Incidental Take Permit
- CESA Sec. 2081 Permit
- Water Right Permit

References: Reference 34 (WQTAC Report). Also See Aquatic Resources TAC report of November 1994, page 44.